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ORIGINAL ARTICLE

Cost of Cultivation and Yield Rates of Paddy Crop in Agriculture: A Comparative Study between Irrigated and Un-Irrigated Areas of Telangana State

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ABSTRACT

This paper deals with the cost of cultivation and yield rates of paddy crops in agriculture. The contribution of primary sector including Agriculture, Horticulture and Animal husbandry to the State Gross Domestic Product for the year 2011-12 is 13.60 percent. However, 56.17 percent of the working population is still dependent on Agriculture. Agriculture in Telangana is mostly dependent on rainfall. Monsoon and seasonal conditions play a major role in the Agricultural Production. In India, after independence the initial transition of agriculture towards greater efficiency was brought to be achieved through institutional and structural reforms of the major reforms that were introduced in India in this regard were land reforms, followed by the introduction of new agricultural technology to increase the efficiency of farm economy and land use. Cost of cultivation analysis, findings are also mentioned.

Key words: *Cost, Cultivation, Yield Rates, Paddy Crop, Agricuture, Telangana.*

INTRODUCTION

The role of Agricultural Sector in State Economy is very significant. The contribution of primary sector including Agriculture, Horticulture and Animal husbandry to the State Gross Domestic Product for the year 2011-12 is 13.60 percent. However, 56.17 percent of the working population is still dependent on Agriculture. Agriculture in Telangana is mostly dependent on rainfall. Monsoon and seasonal conditions play a major role in the Agricultural Production. In India, after independence the initial transition of agriculture towards greater efficiency was brought to be achieved through institutional and structural reforms of the major reforms that were introduced in India in this regard were land reforms, followed by the introduction of new agricultural technology to increase the efficiency of farm economy and land use.

Capital formation is more important in agriculture as increasing production and productivity of Indian agriculture is of paramount concern to keep pace with the increased population, thus feeding the millions and also in the context of benefiting the majority of small and marginal farmers engaged in agriculture through increased income against all odds, major being the vagaries of monsoon. The investment rate in agriculture measured as a ratio of gross capital formation to GDP to the sector has improved in recent years, which has in fact doubled since 1999-2000. Currently, private sector constitutes almost 85 per cent of the capital formation in agriculture. Investment credit has emerged as the major driver there by emphasizing the role of Banks to boost farm level investments. However, the recent declining trend in investment credit vis-à-vis crop loan has serious implications for sustaining capital formation in agriculture.

It is fact the key factor in achieving agricultural development in tropical and semi-arid countries like India are irrigation. Lack of assured irrigation facilities deters agricultural production. The available assured water is also not uniformly distributed over all the places. Lack of adequate irrigation facilities restricts the possibility of double or multiple cropping which in turn in now productivity per unit of land. Since independence much attention has been paid to the development of irrigation potential in country with allocation of increasing amount of investments in each successive five year plan.

OBJECTIVES OF THE STUDY

1. To measure the cost of cultivation in agricultural sector both in irrigated and un-irrigated areas, and examine with the variation among the different categories of farmers.
2. To examine the yield rates of paddy crop among the different categories of farmers in both irrigated and un-irrigated areas.

HYPOTHESES

On the basis of listed objectives of the study the following hypotheses have been considered to test the objectives of the study.

1. The Cost of cultivation across the category of farmers is different both in irrigated and un-irrigated areas, as there exist negative relationship between cost of cultivation and size of the farm.
2. There exists positive relationship between yield rates of paddy crop and size of the farm among various categories of farmers both irrigated and un-irrigated areas.

METHODOLOGY

The main purpose of the study is to analyze the cost of cultivation and yield rates of paddy crop in agriculture of Telangana state among various categories of farmers both irrigated and un-irrigated areas. As out lined earlier in the importance and objectives of the study we have considered the following methodology for collection of the data from secondary and primary sources. The secondary data is collected from government reports and the primary data is organized with the objective to examine the difference in the costs of cultivation and yield rates of paddy crop under different categories of farmers, in both irrigated and un-irrigated areas. The primary data used in the study were obtained by the questionnaire schedule method.

SELECTION OF THE SAMPLE AREAS AND HOUSEHOLDS

The present study propelled data from four villages, two villages belong to irrigated, one is from advance district (Karimnagar) and the other one is from back ward district (Mahabubnagar) in Telangana state. The other two villages belong to un-irrigated areas covering with Karimnagar and Mahabubnagar district respectively. In Karimnagar district the farmers have been cultivating paddy, sugarcane, maize, Cotton and other commercial crops, where as in Mahabubnagar district the farmers have been cultivating paddy, Cotton, pulses and other food grain crops.

The total sample of this study is 120 cultivators have taken 30 each from four villages of both Karimnagar and Mahabubnagar districts.Out of 120 cultivators (farmers) 60 cultivator households have been selected from Karimnagar district (both irrigated and un-irrigated areas) and remaining 60 cultivator households have been selected from Mahabubnagar district (both irrigated and un irrigated areas).

THE FINDINGS

It is proposed to present the structure of cost of cultivation and farm business income under different category of farmers in both irrigated and un-irrigated areas of selected districts (Karimnagar and Mahabubnagar). An attempt has been made in this paper to study the nature and extent of different sizes in the irrigated area of both districts i.e.; Vellulla Village (Karimnagar) and Rechintala village (Mahabubnagar) and un-irrigated area of both districts i.e.; Rekonda village (Karimnagar) and Yenmangandla village (Mahabubnagar).

The cost of cultivation per acre paddy crop in Vellulla village (Karimnagar) large, medium and small farmers is Rs. 25295, Rs. 26565, Rs. 27605 respectively, whereas in Rechintala village (Mahabubnagar) is Rs. 30800, Rs. 31880 and Rs. 32950 respectively. The cost of cultivation average to total in Vellulla village is Rs. 26504, whereas in Rechintala village is Rs. 31879. It is clearly explains that the cost of cultivations of (average) is low in Vellulla as compared to Rechintala village (Mahabubnagar). Cost of cultivation per acre paddy crop in Rekonda village (Karimnagar) large, medium and small farmers is Rs. 30800, Rs. 31880, Rs. 32950 respectively, whereas in Yenmangandla village is Rs. 31300, Rs. 32320 and Rs. 32970 respectively. The cost of cultivation average to total in Rekonda village is Rs. 31879, whereas in Yenmangandla village is Rs.

32196. It is clearly evident that the average cost of cultivation in both irrigated areas of Vellulla village (Karimnagar) and Rechintala village (Mahabubnagar) and un-irrigated areas of Rekonda village (Karimnagar) and Yenmangandla village (Mahabubnagar), large farmers the average cost of cultivation is low as compared to medium and small farmers.

Per acre cost of cultivation is less in large farmers due to advantage of economic skills. It means that bulk use of their inputs leads to reduction in average unit cost. The Cost of cultivation across the category of farmers is different both in irrigated and un-irrigated areas, as there exist negative relationship between cost of cultivation and size of the farm. (In this case first hypothesis is accepted).

Table 1: Size Wise Total Cost of Cultivation of Paddy Crop in Irrigated and U-iIrrigated areas of Selected Districts (In Rupees)

Sl.No	Size of The Farm	Irrigated Area		Un Irrigated Area	
		Vellulla (Karimnagar)	Rechintala (Mahabubnagar)	Rekonda (Karimnagar)	Yenmanagandla (Mahabubnagar)
1	LARGE	25295	26700	30800	31300
2	MEDIUM	26565	27755	31880	32320
3	SMALL	27605	28450	32950	32970
4	AVERGE TO TOTAL	26504	27637	31879	32196

Source:PrimaryData

Table 2: Size Wise Yeild Rates Per Acre (Paddy) in Irrigated and Un-irrigated areas of Selected Districts (in Quintals)

SL.NO	SIZE OF THE FARMER	IRRIGATED AREA		UN IRRIGATED AREA	
		VELLULLA (Karimnagar)	RECHINTALA (Mahabubnagar)	REKONDA (Karimnagar)	YENMANAGANDLA (Mahabubnagar)
1	LARGE	28.3	27.8	25.4	25.1
2	MEDIUM	27.1	26.7	24.2	23.7
3	SMALL	24.5	23.9	21.8	21.3
4	OVERALL	26.6	26.1	23.8	23.4

Source: Primary Data

Per acre yield rates is slightly more in Vellulla village (Karimnagar) as compared to Rechintala (Mahabunagar) village. Per size of farm yield rates of large, medium and small is 28.3,27.1 and 24.5 quintals in Vellulla village respectively, whereas in Rechintala village(Mahabubnagar) is 27.8, 26.7 and 23.9 quintals respectively. Over all yield rates of paddy per acre in Vellulla village is 26.6 quintals, whereas in Rechintala village is 26.1 quintals. The above table clearly indicates per acre yield rates is slightly more in Rekonda village (Karimnagar) as compared to Yenmangandla village (Mahabubnagar). Per size of farm yield rates of large, medium and small is 25.4, 24.2 and 21.8 quintals in Rekonda village respectively, whereas in Yenmangandla village is 25.1, 23.7 and 21.3 quintals respectively. Over all yield rates of paddy per acre in Rekonda village is 23.8 quintals, whereas in Yenmangandla village is 23.4 quintals.

The term size and production and its relationship clearly shows a positive direction. It is important to note that is both irrigated and un-irrigated areas; there is positive relationship between yield per acre and size of the farm (In this case of yield rates second hypothesis is accepted).

Per acre land productivity in Vellulla village (Karimnagar) is the highest on large farms (28.3 quintals) and the lowest on small farms (24.5 quintals) and in Rechintala village (Mahabubnagar) is the highest on large farms (27.8) and lowest on the small farms (23.9), per acre yield rate of paddy increases with an increase in farm size. Overall per farm productivity in vellulla village is 26.3

quintals per acre and in Rechintala village is 26.1 quintals. In Rekonda village (Karimnagar) a small difference among the farm sizes getting yield rates of paddy per acre are 25.4 quintals, 24.2 quintals and 21.8 quintals per farm size of large, medium, and small farmers respectively, whereas in Yenmangandla village (Mahabubnagar) is 25.1, 23.7 and 21.3 quintals respectively. In Rekonda village overall per acre paddy productivity is 23.8 quintals, whereas in Yenmangandla village it is 23.4 quintals.

Table 3: Per Acre Farm Business Income (Paddy) in Irrigated Areas of Selected Districts (In Rupees)

S.No	Vellulla (Karimnagar)					Rechintala (Mahabubnagar)		
	Size of The Farm	Per Acre Cost of Cultivation	Per Acre Returns	Farm Business Income		Per Acre Cost of Cultivation	Per Acre Returns	Farm Business Income
1	LARGE	25295	34526	9231		26700	33582	6882
2	MEDIUM	26565	32737	6172		27755	32147	4392
3	SMALL	27605	29327	1722		28450	28704	254
4	OVERALL	26504	32169	5665		27637	31461	3824

Table 4: Per Acre Farm Business Income (Paddy) in Un-irrigated Areas of Selected Districts (In Rupees)

Si.No	Rekonda (Karimnagar)					Yenmangandla (Mahabubnagar)		
	Size of The Farm	Per Acre Cost of Cultivation	Per Acre Returns	Farm Business Income		Per Acre Cost of Cultivation	Per Acre Returns	Farm Business Income
1	LARGE	30800	30353	-447		31300	29919	-1381
2	MEDIUM	31880	28653	-3227		32320	27990	-4330
3	SMALL	32950	25724	-7226		32970	25006	-7964
4	OVERALL	31879	28227	-3652		32196	27659	-4537

Source: Primary Data

The farm sizes increases returns also increases in irrigated and un-irrigated areas of both districts. In irrigated areas, yield rates and price of paddy are also high as compare to un-irrigated area. In Vellulla village (Karimnagar) large, medium and small farmers have been getting Rs, 34526, Rs, 32737 and Rs, 29327 respectively and in Rechintala village (Mahabubnagar) they have been getting Rs, 33582, Rs, 32147 and Rs, 28704 respectively. Average value to total in Vellulla village is Rs. 32169, whereas in Rechintala village is Rs. 31461. In this case returns are more in Vellulla than in Rechintala village. In Rekonda village (Karimnagar) large, medium and small farmers have been getting Rs, 30353, Rs, 28653 and Rs, 25724 respectively and in Yenmangandla village (Mahabubnagar) they have been getting Rs, 29919, Rs, 27990 and Rs, 25006 respectively. Average value to total in Rekonda village is Rs. 28227, whereas in Yenmangandla village is Rs. 27659. In this case returns are more in Rekonda than in Yenmangandla village.

The farm sizes increases; farm business income also increases in irrigated areas of both districts. In irrigated areas, farm business income is positive direction as compare to un-irrigated areas of Karimnagar and Mahabubnagar districts, but in un-irrigated areas of both districts farmers have been getting negative farm business income. (In this case of farm business income second hypothesis is rejeted).

In Vellulla village (Karimnagar) large, medium and small farmers farm business income is Rs, 9231, Rs, 6172 and Rs, 1722 respectively and in Rechintala village (Mahabubnagar) is Rs, 6882, Rs, 4392 and Rs, 254 respectively. Overall farm business income in Vellulla village is Rs. 5665, whereas in Rechintala village is Rs. 3824. In this case farm business income is high in Vellulla than Rechintala village. In Rekonda village (Karimnagar) large, medium and small farmers farm business income is Rs, -447, Rs, -3227 and Rs, -7226 respectively and in Yenmangandla village (Mahabubnagar) is Rs,

-1381, Rs, -4330 and Rs, -7964 respectively. Overall farm business income in Rekonda village is Rs. -3652, whereas in Yenmangandla village is Rs. -4537.

CONCLUSION

This paper is a brief summary of the study. Here an attempt has been made recapitulate main objectives and findings on the basis of analytical perceptions of the study.

The cost of cultivation average to total in Vellulla is Rs. 26504, whereas in Rekonda village is Rs. 31879. The cost of cultivation average to total in Rechintala village is Rs. 27637, whereas in Yenmangandla village is Rs. 32196. It is clearly explains that the cost of cultivation (average) is low in irrigated area as compared to un-irrigated areas of both Karimnagar and Mahabubnagar districts.

The cost of cultivation is low to the large formers of both the irrigated and un- irrigated areas as compared to medium and small farmers. The cost cultivation is less in irrigated area when compared with the un- irrigated areas of both the districts. The reasons for the low cost of cultivation in irrigated area are Proper methods of agricultural processing activities, time to time use of Fertilizers and pesticides, easy ways of getting Government schemes, using marketing systems thoroughly, following agricultural officers and adhrsha rythu's advices, reducing wastages and irrigation charges are very less. Contrary to this is found in un-irrigated area. The reasons for the high cost of cultivation in un-irrigated area are irrigation charges are high (Digging wells, bore wells, motor engines expenditure and current charges), Pesticides and fertilizers are not used in properly, loans may not be sanctioned in time, borrow of money at high rate of interest, Suggestions of agricultural officers don't reach the farmers, unaware of government agricultural schemes.

In Karimnagar district, over all yield rates of paddy per acre in Vellulla village is 26.6 quintals, and in Rekonda village is 23.8 quintals. In Mahabubnagar district, over all yield rates of paddy per acre in Rechintala village is 26.1 quintals, and in Yenmangandla village is 23.4 quintals. Both in Karimnagar and Mahabubnagar districts, per acre yield rates of paddy crop is more in irrigated area as compared to un irrigated area. In both Karimnagar and Mahabubnagar districts, farm sizes increases returns also increases in irrigated and un-irrigated areas. In irrigated areas, yield rates and price of paddy are also high as compare to un-irrigated areas of both districts.

The productivity and production is high in irrigated area. Because Proper utilization of agricultural inputs, using quality seeds, latest agricultural equipments is used, enough water facilities. And the productivity and production is low in un- irrigated area. Because Scanty rains, frequent power cuts, not allowing new techniques, using low quality seeds, pesticides and fertilizers are not used properly.

In Vellulla village (Karimnagar) large, medium and small farmers farm business income is Rs, 9231, Rs, 6172 and Rs, 1722 respectively and in Rechintala village (Mahabubnagar) is Rs, 6882, Rs, 4392 and Rs, 254 respectively. Overall farm business income in Vellulla village is Rs. 5665, whereas in Rechintala village is Rs. 3824. In Rekonda village (Karimnagar) large, medium and small farmers farm business income is Rs, -447, Rs, -3227 and Rs, -7226 respectively and in Yenmangandla village (Mahabubnagar) is Rs, -1381, Rs, -4330 and Rs, -7964 respectively. Overall farm business income in Rekonda village is Rs. -3652, whereas in Yenmangandla village is Rs. -4537.

The farm sizes increases; farm business income also increases in irrigated areas of both districts. In irrigated areas, farm business income is positive direction as compare to un-irrigated areas of Karimnagar and Mahabubnagar districts, but in un-irrigated areas of both districts farmers have been getting negative farm business income. Farm business income is more in irrigated area, because grading the food grains, getting MSP (Minimum Support Price), awareness of marketing systems and not to be cheated by measurements / weighs. Farm business income is low in un-irrigated area. Because non - grading the food grains, Selling the product on the fields itself, unaware of marketing systems, do not get MSP (Minimum Support Price), Cheated by measurements / weighs, Pressure of the commission agents and money lenders and Selling food grains at low price.

SUGGESTIONS

1. To provide irrigation facilities to un-irrigated farmers and more subsidies should be provided to the small farmers for diggings wells, drip irrigation and sprinkle irrigation.
2. To encourage the farmers to use biological resources for satisfying his energy needs. This will help reduce the cost of enriching soil fertility and increase the productivity and production.
3. To motivate the small farmers to go for more energy consciousness and efficiency, small sized machinery and equipments should be manufactured on priority basis and cost effective basis. Energy inputs can be given at subsidized rates at the time of need to decrease the cost of cultivation.
4. To suggest the instructions to apply timely the agricultural inputs, this will highly reduce the cost of cultivation. And subsidized physical variable capital like seed, fertilizers should be provided to small farmers.
5. The Government should instruct the banks, agricultural credit societies and other financial institutions to extend financial assistance at a nominal rate of interest at the right time.

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